

GSL Science Panel Coordination

ATTENDEES: Joe Skorupa/USFWS
Theresa Presser/USGS
Anne Fairbrother/USEPA
Bill Wuerthele/USEPA
Bill Adams/Rio Tinto

Bill Moellmer/UDWQ
Theron Miller/UDWQ
Harry Ohlendorf/CH2M HILL
Jeff DenBleyker/CH2M HILL

FROM: Jeff DenBleyker

DATE: January 4, 2007

Review of Meeting Summary – November 30, 2006 Science Panel Meeting

Comments to finalize meeting summary are requested by January 12, 2007. Meeting summary will then be posted on UDEQ's project website.

Review of Draft Threshold Values Memo

Harry Ohlendorf revised his original threshold values memo dated November 26, 2006, to incorporate discussion at the Science Panel meeting on November 30, 2006, and submitted it to the panel for review in December.

Bill Adams is re-evaluating the statistics on diet-based bird threshold values using a hockey-stick approach. Joe will send Bill examples of reporting confidence limits on the break point and EC₁₀, and asked that Bill also determine the confidence intervals around the break point. Bill agreed.

The Science Panel discussed the hormesis effect as described in the presentation Joe circulated. It was concluded that the hormesis effect should be evaluated at the level of the individual published study and not a consolidated database. Only one study with mallards (by Heinz et al. 1989) has a range of treatment levels that makes it suitable for analysis of hormetic effects, and the interpretation of those effects is obscured by combining the results of different studies. Actual impact of hormesis effect on diet and egg threshold values may not be readily determined but should be qualitatively considered in evaluating threshold values.

Joe and Theresa have provided comments on the threshold effects memo, and Bill Adams and Anne indicated they will provide comments by early next week. Harry will send everyone's review comments to the Panel members and will revise his memo to incorporate them. Bill Adams will finish his statistical work and evaluation of hormesis effect and send the data to the panel for review. The goal is to finalize the memo in February.

Review of Draft Bird Blood Memo

Gary Santolo and Harry Ohlendorf prepared a memorandum summarizing the differences of reporting dry weight vs. wet weight concentrations for blood, presented blood Se

concentrations in both formats, and provided possible explanations for elevated selenium concentrations in bird blood.

The Panel's consensus was that the critical endpoints are diet and egg concentrations. Blood is not currently seen as a critical endpoint but there is a possibility it could become one in the future. The Panel requested that reference sample results, spike sample analysis results, and an answer from the lab as to why blood concentrations were reported as ug/g be submitted for their review. They would also like some blood samples sent to Tom May's/USGS' lab for verification of lab analytical work. CH2M HILL will evaluate these comments and update the memorandum. Once the Panel is able to review these materials, they will determine whether additional analytical work should be completed to explore this issue.

Review of Draft California Gull Report

Panel will submit comments to CH2M HILL by January 12, 2007. CH2M HILL will consolidate and pass on to Dr. Conover. The Panel did not think it was feasible to finalize the report until the blood issue is resolved.

Brine Shrimp Studies

The Science Panel was unanimous in that a brine shrimp kinetics study was essential to helping determine a water quality standard. They also agreed that time was of the essence, results should be made available in June/July 2007 to be useful in this program, and that 5-6 months was a reasonable time frame for completion of the study if the radioisotope and algae culturing issues are addressed immediately. They concluded that work should start immediately to be useful. It was agreed that a formal competitive procurement process was not feasible given time constraints and the need for this project.

The following 5 objectives were generally agreed upon for the study:

1. better define Se kinetics in brine shrimp,
2. evaluate potential regulation of Se by brine shrimp,
3. evaluate the influence of higher Se concentrations in water and diet to better define the "knee" of the curve,
4. evaluate the influence of longer contact times (this may not be as critical if radioisotope analysis is completed), and
5. include radioisotope analysis as part of study to measure uptake, elimination, assimilation efficiency and steady-state concentration.

Given the present timing constraints, the panel discussed the feasibility of completing the study through Dr. Grosell at the University of Miami. Although it is the panel's understanding Dr. Grosell has not previously completed the specific experiments required, the panel did feel he is a qualified scientist, has already obtained the required isotopes (requires 3 month lead time to obtain them), has the required license to complete the radioisotope analysis, and has further developed methods to culture organisms per lessons learned at the University of Wyoming as part of work begun last fall with Rio Tinto. The Science Panel recommended that UDWQ request Dr. Grosell to develop a workplan to complete the study with the intent to extend a contract if the workplan is acceptable. This workplan will be reviewed by CH2M HILL, the Science Panel, and a yet-to-be named independent bio-kinetics expert that is not associated with the Science Panel or CH2MHill.

The panel will determine at that time the frequency and method of oversight and/or direct collaboration between Dr. Grosell and the independent expert. The intent of having the independent expert is to ensure that methods and results meet the rigor required for this important study with no link to Science Panel members. Any work completed by Dr. Grosell will be funded entirely by UDWQ and fall under the prescribed oversight process and protocols established for the Great Salt Lake selenium program through CH2M HILL .